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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/782,772	YUN ET AL.	
	Examiner	Art Unit	
	Thomas A. Morrison	3653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) *1-10,16-18,24,25 and 29-31* is/are withdrawn from consideration.

5)☒ Claim(s) *14* is/are allowed.

6)☒ Claim(s) *11-13,15,19-23,26-28 and 32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 15 and 26 are objected to because of the following informalities: (1) "the rear surface" in line 7 of claim 15 should be -- a rear surface --; (2) "the determination" in line 7 of claim 26 should be -- the detection --; and (3) "determining" in line 10 of claim 26 should be -- detecting --. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 11-12, 19-21, 23 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Publication No. 2002-187629 (hereinafter "JP '629) in view of Japanese Publication No. 2000-118764 (hereinafter "JP '764") or Japanese Publication No. 7-330183 (hereinafter "JP '183").

Regarding independent claim 11, Figs. 1-11 of JP '629, the English abstract of this publication and the English translation of section [0010] of this publication disclose a method to pick up a paper in a printing apparatus having a main body, at least one friction member installed to the main body to change an angle of the friction member to form an angle in relation to leading edges of sheets of paper picked up from a paper feeding section and elastically biased in a first direction; a cam unit movably installed to

the main body to forcibly move the at least one friction member to a second direction while the cam unit is being moved by driving force; and a driving force supply unit movably installed to the main body to supply driving force to the cam unit at the time of being moved, the method including

automatically detecting (via the sensor in the English translation of section [0010]) a type of one of the sheets of paper to be picked up and supplying a signal indicative of the type of the sheet of paper to be picked up (i.e., signal from the sensor);

classifying the paper to a first type having a thickness within a predetermined range or a second type thicker than the first type of paper based on the signal (see, e.g., translation of section [0010]); and

supplying a driving force to the cam unit (including 12) when the paper is classified as the first type of paper.

Also, Figs. 1-11 of this publication show a friction member (including 6) abutting against leading edges of the sheets of paper.

Regarding independent claim 19, Figs. 1-11 of JP '629, the English abstract of this publication and the English translation of section [0010] of this publication disclose a method to pick up a plurality of papers in a printing apparatus, including

automatically detecting (via the sensor in the English translation of section [0010]) whether the plurality of papers are a first type having a thickness within a

predetermined range or a second type thicker than the first type (see e.g., translation of section [0010]); and

dynamically changing an angle formed between a friction member (including 6) and a leading edge of each of the papers, the friction member abutting against the leading edges of each of the papers.

Regarding independent claim 20, Figs. 1-11 of JP '629, the English abstract of this publication and the English translation of section [0010] of this publication disclose a method to pick up paper in a printing apparatus, including

automatically detecting (via the sensor in the English translation of section [0010]) types of the paper to be picked up and supplying a signal indicative of types of the paper to be picked up (i.e., signal from the sensor); and

classifying the paper to a first type having a thickness within a predetermined range or a second type thicker than the first type based on the signal (see e.g., translation of section [0010] and the English Abstract).

Also, Figs. 1-11 of this publication show a friction member (including 6) abutting against the leading edge of the paper.

Regarding independent claim 26, Figs. 1-11 of JP '629, the English abstract of this publication and the English translation of section [0010] of this publication disclose a method to pick up paper in a printing apparatus having friction member, comprising:

automatically detecting (via the sensor in the English translation of section [0010]) whether the paper belongs to a first type of paper or a second type of paper.

Also, Figs. 1-11 of this publication show a friction member abutting against the leading edge of the paper and the friction member (including 6) applies frictional resistance to the leading edge of the paper.

With regard to independent claims 11, 19-20 and 26, JP '629 discloses the claimed invention except pivotally moving the friction member (including 6) and picking up the paper from the paper feeding section (near 1) when the friction member (including 6) has been pivotally moved. Rather, JP '629 discloses moving a paper support (1) by a cam unit (including 11 and 12) relative to the friction member (including 6) to adjust the angle between the friction member (including 6) and the leading edges of the sheets of paper.

JP '764 and JP '183 both disclose that it is well known to rearrange parts, so that an operating mechanism (Fig. 3 in JP '764 or Fig. 4 in JP '183) is coupled to a friction member (element 12 in JP '764 or element 3a in JP '183) for moving the friction member relative to a paper support, rather than having an operating mechanism coupled to a paper support to move the paper support relative to the friction member, as shown in JP '629. This rearrangement of parts according to JP '764 and JP '183 reduces the vertical height requirement of the printing apparatus. Namely, this rearrangement of parts eliminates the large vertical height required to facilitate up and down movement of the paper support and the stack of sheets relative to the friction member, as compared to the smaller vertical height required to facilitate up and down

movement of the friction member relative to the paper support. It would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the parts of JP '629 so that the friction member (including 6) of JP '629 is movable and the operating mechanism (cam unit 11 and 12) of JP '629 is coupled to the friction member (including 6), rather than having the operating mechanism coupled to the paper support (1) of JP '629, for the purpose of reducing the vertical height requirement of the printing apparatus, as shown in JP '764 and JP '183. Rearranging the parts of JP '629 in a manner as taught by JP '764 or JP '183 will result in pivotally moving the friction member (including 6) of JP '629 and changing an angle formed between the friction member (including 6) of JP '629 and leading edges of the sheets of paper, as set forth in claim 11. Also, JP '764 and JP '183 show picking up the paper from a paper feeding section when a friction member has been pivotally moved in a second direction, as set forth in claim 11. Thus, this limitation will be met by the combination of references. Moreover, rearranging the parts of JP '629 in a manner as taught by JP '764 or JP '183 will result in pivotally moving the friction member (including 6) of JP '629 applying frictional resistance to the leading edge of each of the plurality of papers based on the detection so that each of the plurality of papers are separately picked up, since the operating mechanism (including 11 and 12) of JP '629 operates based on such detection. Thus, all of the limitations of claim 19 are met. Also, rearranging the parts of JP '629 in a manner as taught by JP '764 or JP '183 will result in pivotally moving the friction member (including 6) of JP '629 and changing an angle formed between the friction member (including 6) of JP '629 and a leading edge of the

paper, upon classifying the paper as the first type or the second type, since the operating mechanism (including 11 and 12) of JP '629 operates based on such classifying. Thus, all of the elements of claim 20 are met. In addition, rearranging the parts of JP '629 in a manner as taught by JP '764 or JP '183 will result in pivotally moving the friction member (including 6) of JP '629 and changing an angle formed between the friction member (including 6) of JP '629 and a leading edge of the paper. Since the operating mechanism of JP '629 operates based on the determination of the paper type, the movement of friction member will occur upon determining that the paper belongs to the first type of paper, as set forth in claim 26. Finally, it is noted that JP '764 and JP '183 show that an angle formed between a friction member and the leading edge of paper when the friction member is moved in a first direction is larger than an angle formed when the friction member is moved in a second direction. Thus, this condition will occur when JP '629 is modified in a manner as set forth in JP '764 or JP '183. Thus, all of the limitations of independent claims 11, 19-20 and 26 are met.

Regarding dependent claim 12, the English translation of section [0010] of JP '629 discloses that the operation of supplying the signal comprises: supplying a detection signal from a detection sensor that detects the type of paper loaded in the paper feeding section provided to the main body.

Regarding dependent claim 21, the English translation of section [0010] of JP '629 discloses that the operation of supplying the signal comprises: supplying a detection signal via a detection sensor that detects the types of paper loaded in a paper feeding section (near 1 in JP 2002-118764) provided to the printing apparatus.

Regarding dependent claim 23, Figs. 1-11 of JP '629 shows that the structure of the friction member (including 6) allows a predetermined frictional force to be applied to a leading edge of the paper.

Regarding dependent claim 27, a frictional resistance applied to the leading edge of the paper by the friction member (including 6 of JP '629) will increase when the angle formed between the friction member (including 6 of JP '629) and the leading edge of the paper is reduced.

Regarding dependent claim 28, a frictional resistance applied to the leading edge of the paper by the friction member (including 6 of JP '629) will decrease when the angle formed between the friction member (including 6 of JP '629) and the leading edge of the paper is increased.

3. Claims 11-12, 19-21, 23, 26-28 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,449,162 (Sato et al.) in view of Japanese Publication No. 2000-118764 (hereinafter "JP '764") or Japanese Publication No. 7-330183 (hereinafter "JP '183").

Regarding independent claim 11, Fig. 10 of Sato et al. discloses a method to pick up a paper in a printing apparatus having a main body, at least one friction member installed to the main body to change an angle of the friction member to form an angle in relation to leading edges of a sheets of paper picked up from a paper feeding section and elastically biased in a first direction; a cam unit movably installed to the main body to forcibly move the at least one friction member to a second direction while the cam

unit is being moved by driving force; and a driving force supply unit movably installed to the main body to supply driving force to the cam unit at the time of being moved, the method including

automatically detecting (via sensor 133a and 133b or sensor 340 and 350) a type of one of the sheets of paper to be picked up and supplying a signal indicative of the type of the sheet of paper to be picked up (i.e., signal from sensor 133a and 133b or sensor 340 and 350);

classifying the paper to a first type having a thickness within a predetermined range or a second type thicker than the first type of paper based on the signal (see, e.g., column 13, lines 19-32);

supplying a driving force to the cam unit (including 130) when the paper is classified as the first type of paper;

pivotally moving (about 128) the at least one friction member (including 126) and changing an angle formed between a support (including 127) for the at least one friction member (126) and leading edges of the sheets of paper, the friction member (126) abutting against each of the leading edges of the sheets of paper, to the second direction by driving the cam unit (including 130), the friction member (including 126) applying frictional resistance to leading edges of the sheets of paper. The friction member (including 126) of Sato will abut against each of the leading edges of the sheets of paper, e.g., as each sheet is fed into the area where elements 125 and 126 contact each other.

Moreover, Fig. 10 of Sato et al. shows picking up the paper (via 124) from the paper feeding section (near 122) when the at least one friction member (including 126) has been pivotally moved in the second direction.

Regarding independent claim 19, Fig. 10 of Sato et al. discloses a method to pick up a plurality of papers in a printing apparatus, including

automatically detecting (via sensor 133a and 133b or sensor 340 and 350) whether the plurality of papers are a first type having a thickness within a predetermined range or a second type thicker than the first type (see column 13, lines 19-25); and

dynamically changing an angle formed between a support (including 127) for friction member (including 126) and a leading edge of each of the papers, the friction member (including 126) abutting against the leading edges of each of the papers and pivotally moving the friction member (i.e., pivotally moving elements 127 and 126) applying frictional resistance to the leading edge of each of the plurality of papers based on the detection so that each of the plurality of papers are separately picked up. See, e.g., Fig. 10 and column 12, line 52 to column 13, line 50. The friction member (including 126) of Sato will abut against the leading edges of each of the papers, e.g., as each sheet is fed into the area where elements 125 and 126 contact each other.

Regarding independent claim 20, Fig. 10 of Sato et al. discloses a method to pick up paper in a printing apparatus, including

automatically detecting (via sensor 133a and 133b or sensor 340 and 350) types of the paper to be picked up and supplying a signal indicative of types of the paper to be picked up (e.g., via sensor 133a and 133b or sensor 340 and 350);

classifying the paper to a first type having a thickness within a predetermined range or a second type thicker than the first type based on the signal (see, e.g., column 13, lines 19-32);

pivotally moving a friction member (including 126) and changing an angle formed between a support (including 127) for friction member (including 126) and a leading edge of the paper, the friction member (including 126) abutting against the leading edge of the paper, upon classifying the paper as the first type or the second type, the friction member (including 126) applying frictional resistance to the leading edge of the paper; and

picking up the paper (via 124) when the friction member (including 126) has been moved based on the classification.

The friction member (including 126) of Sato will abut against the leading edge of the paper, e.g., as each sheet is initially fed into the area where elements 125 and 126 contact each other.

Regarding independent claim 26, Fig. 10 of Sato et al. discloses a method to pick up paper in a printing apparatus having friction member, comprising:

automatically detecting (via sensor 133a and 133b or sensor 340 and 350) whether the paper belongs to a first type of paper or a second type of paper (see e.g., column 13, lines 19-32); and

pivotally moving the friction member (including 126) and changing an angle formed between a support (including 127) for friction member (including 126) and a leading edge of the paper, the friction member (including 126) abutting against the leading edge of the paper, based on the determination, the friction member (including 126) applying frictional resistance to the leading edge of the paper, wherein an angle formed between the support (including 127) for friction member (including 126) and the leading edge of the paper when the friction member (including 126) is moved in a first direction is larger than an angle formed when the friction member (including 126) is moved in a second direction upon determining that the paper belongs to the first type of paper.

The friction member (including 126) of Sato will abut against the leading edge of the paper, e.g., as each sheet is initially fed into the area where elements 125 and 126 contact each other.

Regarding independent claim 32, Fig. 10 of Sato et al. discloses a method for feeding sheets of paper in a printing apparatus using a friction member pivotally attached to a paper feeding section of the printing apparatus, comprising:

determining whether the each of the sheets of paper belongs to a first type of paper or a second type of paper having greater thickness than the first type of paper

based on stored information indicative of a type of paper (see, e.g., column 10, lines 24-36).

Moreover, Fig. 10 and column 12, line 57 to column 13, line 49 discloses automatically adjusting an angle of a support (including 127) for friction member (including 126) based on the determining to dynamically change an angle formed between the support (including 127) for friction member (including 126) pivotally attached to the paper feeding section (i.e., the paper feeding section is located in the central region of the apparatus shown in Fig. 10 of Sato et al.) and leading edges of the sheets of paper picked up from the paper feeding section. Also, the friction member (including 126) of Sato abuts against each of the leading edges of the sheets of paper, e.g., as each sheet is fed into the area where elements 125 and 126 contact each other. Moreover, the friction member (including 126) applies frictional resistance to leading edges of the sheets of paper.

With regard to independent claims 11, 19, 20, 26 and 32, Sato discloses adjusting an angle of a support (including 127) for friction member (126), but does not disclose adjusting an angle of the friction member, as claimed. More specifically, Sato et al. meets the limitations of the claim except that it employs a roller (including 126) in contact with a feeding roller (125) rather than a plate in contact with a feeding roller as a friction member to separate sheets one at a time. By using a round roller instead of a flat plate, Sato et al. does not specifically disclose changing or adjusting an angle formed between the friction member (including 126) and leading edges of the sheets, as claimed. However, JP '764 and JP '183 both show that a roller and a plate were art

recognized equivalents at the time of the invention in those sheet separating applications where it is immaterial whether the roller or the plate is used for applying friction to sheets in order to separate sheets one by one. Therefore, one of ordinary skill would have found it obvious to substitute a plate for the roller of Sato et al. to apply friction to sheets and separate sheets one by one, as suggested by Fig. 1 of JP '764 and Fig. 1 of JP '183. Replacing the roller (including 126) of Sato et al. with a plate in a manner as taught by JP '764 or JP '183 will result in the apparatus of Sato et al. operating such that it pivotally moves the friction member (i.e., the plate) coupled to the support (including 127) and changes an angle formed between the friction member (i.e., the plate) and the leading edges of the sheets of paper, as set forth in claims 11, 19, 20, and 26. Moreover, replacing the roller (including 126) of Sato et al. with a plate in a manner as taught by JP '764 or JP '183 will result in the apparatus of Sato et al. operating such that it automatically adjusts an angle of the friction member (i.e., the plate) that is coupled to the pivoting support (including 127) based on the determining to dynamically change an angle formed between the friction member (i.e., the plate) pivotally attached to the paper feeding section (i.e., the paper feeding section is located in the central region of the apparatus shown in Fig. 10 of Sato et al.) and leading edges of the sheets of paper picked up from the paper feeding section, as set forth in claim 32. Thus, all of the limitations of claims 11, 19, 20, 26 and 32 are met.

Regarding dependent claim 12, Fig. 10 of Sato et al. shows that the operation of supplying the signal comprises: supplying a detection signal from a detection sensor

(i.e., sensor 133a and 133b or sensor 340 and 350) that detects the type of paper (i.e., thick or thin paper) loaded in the paper feeding section provided to the main body.

Regarding dependent claim 21, Fig. 10 of Sato et al. discloses that the operation of supplying the signal comprises: supplying a detection signal via a detection sensor (sensor 133a and 133b or sensor 340 and 350) that detects the types of paper loaded in a paper feeding section (near 122) provided to the printing apparatus.

Regarding dependent claim 23, Fig. 10 of Sato et al. shows that the structure of the friction member (including 126) allows a predetermined frictional force to be applied to a leading edge of the paper.

Regarding dependent claim 27, a frictional resistance applied to the leading edge of the paper by the friction member (the plate) will increase when the angle formed between the friction member (the plate) and the leading edge of the paper is reduced.

Regarding dependent claim 28, a frictional resistance applied to the leading edge of the paper by the friction member (the plate) will decrease when the angle formed between the friction member (the plate) and the leading edge of the paper is increased.

4. Claims 13 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,449,162 (Saito et al.) and JP '764 or JP '183 as applied to claims 11 and 20 above, and further in view of U.S. Patent No. 6,002,891 (Shin). In particular, the Saito et al. patent discloses a paper handling apparatus with a controller that receives a signal indicative of a paper type (e.g., based on paper thickness) from a detector (e.g., sensor 133a and 133b or sensor 340 and 350) and

then outputs a signal to control the paper handling apparatus, but Saito et al. does not specifically state that the controller supplies a signal from a memory with stored information in relation to types of paper. See, e.g., Fig. 10 and column 13 of the Saito et al. patent.

The Shin patent discloses that it is well known to provide a paper handling apparatus with a controller that receives a signal indicative of a paper type (e.g., thick paper or thin paper) from a sensor (500), and then compares the received signal to a look-up table with information related to paper type, in order to automatically output a signal that properly corresponds with the detected paper type, for operating the paper handling device of Shin. See, e.g., Figs. 3-4 and column 4, lines 14-28 of Shin. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the control method of Shin in the environment of the apparatus of Saito et al. in view of Japanese Publication No. 2000-118764 or Japanese Publication No. 7-330183 to have the controller of Saito et al. automatically output a control signal that properly corresponds with the detected paper type from a memory with stored information in relation to the types of paper (i.e., the look-up table in the controller), because this offers a more accurate control method than that of Saito et al. Accordingly, all of the limitations of claims 13 and 22 are met.

5. Claims 11, 15, 19-20, 23 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Publication No. 57-180543 (hereinafter "JP '543") in view of U.S. Patent No. 5,449,162 (Saito et al.), and further in view of Japanese Patent Publication No. 2000-118764 (hereinafter "JP '764").

Regarding independent claim 11, Figs. 1-3 and the English Abstract of JP '543 disclose a method to pick up a paper in a printing apparatus having a main body, at least one friction member installed to the main body to change an angle of the friction member to form an angle in relation to leading edges of sheets of paper picked up from a paper feeding section and elastically biased in a first direction; a cam unit movably installed to the main body to forcibly move the at least one friction member to a second direction while the cam unit is being moved by driving force; and a driving force supply unit movably installed to the main body to supply driving force to the cam unit at the time of being moved, the method including

detecting a type of one of the sheets of paper to be picked up and supplying a signal indicative of the type of the sheet of paper to be picked up (detecting and supplying signals via operated switches 27-29. See also English Abstract);

classifying the paper to a first type having a thickness within a predetermined range or a second type thicker than the first type of paper based on the signal (see English abstract of JP '543);

supplying a driving force to the cam unit (including 21) when the paper is classified as the first type of paper;

pivotally moving the at least one friction member (13) to the second direction by driving the cam unit (including 21), the friction member (13) applying frictional resistance to leading edges of the sheets of paper; and

picking up the paper from the paper feeding section (near 12 in Fig. 2) when the at least one friction member (13) has been pivotally moved in the second direction.

Also, the friction member (13) abuts against each of the leading edges of the sheets of paper, as each sheet is being fed into the area where elements 13 and 12 contact each other.

Regarding independent claim 19, Figs. 1-3 and the English Abstract of JP '543 disclose a method to pick up a plurality of papers in a printing apparatus, including

detecting whether the plurality of papers are a first type having a thickness within a predetermined range or a second type thicker than the first type (detecting via operated switches 27-29. See English Abstract); and

dynamically changing an angle formed between a support (14) for a friction member (13) and a leading edge of each of the papers, the friction member (13) abutting against the leading edges of each of the paper and pivotally moving the friction member (13) applying frictional resistance to the leading edge of each of the plurality of papers based on the detection so that each of the plurality of papers are separately picked up.

Regarding independent claim 20, Figs. 1-3 and the English Abstract of JP '543 disclose a method to pick up paper in a printing apparatus, including

detecting types of the paper to be picked up and supplying a signal indicative of types of the paper to be picked up (detecting and supplying signals via operated switches 27-29);

classifying the paper to a first type having a thickness within a predetermined range or a second type thicker than the first type based on the signal (English Abstract);

pivotally moving a friction member (13) upon classifying the paper as the first type or the second type, the friction member (13) applying frictional resistance to the leading edge of the paper; and

picking up the paper when the friction member (13) has been moved based on the classification.

Also, the friction member (13) abuts against the leading edge of the paper, as the paper is being fed into the area where elements 13 and 12 contact each other.

Regarding independent claim 26, Figs. 1-3 and the English Abstract of JP '543 disclose a method to pick up paper in a printing apparatus having friction member, comprising:

detecting whether the paper belongs to a first type of paper or a second type of paper (detecting via operated switches 27-29); and

pivotally moving the friction member (13) based on the determination, the friction member (13) applying frictional resistance to the leading edge of the paper, wherein an angle formed between the friction member (13) and the leading edge of the paper when

the friction member (13) is moved in a first direction is larger than an angle formed when the friction member (13) is moved in a second direction upon determining that the paper belongs to the first type of paper. See, e.g., English Abstract and Figs. 1-3.

Also, the friction member (13) abuts against the leading edge of the paper, as the paper is being fed into the area where elements 13 and 12 contact each other.

With regard to independent claims 11, 19, 20 and 26, the friction member (13) has an outer surface that applies friction resistance to a leading edge of each paper, which resists slipping of such paper relative to the friction member (13) during feeding of such paper. With regard to independent claims 11, 19, 20 and 26, JP '543 meets most of the limitations except that it employs a roller (13) in contact with a feeding roller (12) rather than a plate in contact with a feeding roller as a friction member to separate sheets one at a time. By using a round roller instead of a flat plate, JP '543 does not specifically disclose changing an angle formed between the friction member (13) and leading edges of the sheets, as claimed. However, JP '764 shows that a roller and a plate were art recognized equivalents at the time of the invention in those sheet separating applications where it is immaterial whether the roller or the plate is used for applying friction to sheets in order to separate sheets one by one. Therefore, one of ordinary skill would have found it obvious to substitute a plate for the roller of JP '543 to apply friction to sheets and separate sheets one by one, as suggested by Fig. 1 of JP '764. Replacing the roller (13) of JP '543 with a plate in a manner as taught by JP '764 will result in the apparatus of JP '543 operating such that it pivotally moves the at least one friction member (i.e., the plate) and changes an angle formed between the at least

one friction member (the plate) and leading edges of the sheets of paper, as set forth in independent claims 11, 19, 20 and 26.

JP '543 in view of JP '764 meets the claimed invention of claims 11, 19, 20 and 26, except that JP '543 discloses the operation of paper quality selection buttons and switches 27-29 that is detected as an indication of the type of paper, and then signals indicative of the paper type are supplied to operate the device, rather than automatic detecting of a paper type and supplying signals indicative of the paper type.

However, the Saito et al. patent discloses that it is well known to provide a paper feeding device (Fig. 10) with a sensor (133a and 133b or sensor 340 and 350) for the purpose of automatically detecting the thickness of paper to be fed and supplying signals indicative of such thickness to a controller to automatically control the position of a friction member (including 126) without the need for any human intervention. See e.g., columns 12 and 13 of Saito et al. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the apparatus of JP '543, as modified by JP '764, with a sensor for automatically detecting the thickness of paper to be fed and supplying signals indicative of such thickness to automatically control the position of the friction member (the plate) of JP '543 without the need for any human intervention, since it has been held that broadly providing a mechanical or automatic means to replace manual activity which has accomplished the same result involves only routine skill in the art. *In re Venner, 120 USPQ 192.* One of ordinary skill in the art would have been motivated to provide the apparatus of JP '543 in view of JP '764 with a sensor for automatically detecting the thickness of paper to be fed and

supplying signals indicative of such thickness to automatically control the position of the friction member (the plate) of JP '543, because the automatic position control method of Saito et al. eliminates human intervention, and therefore, provides a more accurate control method than that of JP '543. Thus, all of the limitations of independent claims 11, 19, 20 and 26 are met by this combination of references.

Regarding dependent claim 15, as best understood, Figs. 1-3 and the English Abstract of JP '543 disclose that the operation of moving the at least one friction member in the second direction comprises:

contacting a link arm (14) with the driving force supply unit (including 15) and receiving driving force to pivot the link arm (14), the link arm (14) being pivotally installed in the main body;

connectively rotating a camshaft (23) linked to the link arm (14)(i.e., linked via 21, 19, 18, 16 and 15), the camshaft (23) having at least one cam projection (i.e., projection on 21) projecting from the camshaft (23) and

compressing the rear surface of the at least one friction member in the second direction while the at least one cam projection (projection on 21) is being rotated along with the camshaft (23), wherein the cam unit (including 21) includes the camshaft (23) having the at least one cam projection (on 21).

Regarding dependent claim 23, Figs. 1-3 and the English Abstract of JP '543 disclose that the structure of the friction member allows a predetermined frictional force to be applied to the leading edge of the paper.

Regarding dependent claim 27, with regard to JP '543, a frictional resistance applied to the leading edge of the paper by the friction member will increase when the angle formed between the friction member and the leading edge of the paper is reduced.

Regarding dependent claim 28, with regard to JP '543, a frictional resistance applied to the leading edge of the paper by the friction member will decrease when the angle formed between the friction member and the leading edge of the paper is increased.

Response to Arguments

6. Applicant's arguments with respect to claims 11, 13, 19, 20, 21-23, 25-28 and 32 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

7. Claim 14 is allowed.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Morrison whose telephone number is (571) 272-7221. The examiner can normally be reached on M-F, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Mackey can be reached on (571) 272-6916. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

07/7/2007

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